

ACADEMY OF SCIENCES.

ANNUAL MEETING AT WASHINGTON.

QUEER APPROACHES TO THE SMITHSONIAN—BOTANY AT A PEANUT STAND—THE GRAY BEARDS OF SCIENCE—AN INVENTION THAT WILL TEST TUNING-FORKS—THE ARRANGEMENTS FOR AN EXPLOSION AT HELL GATE—BRIEF NOTES ON MAGIC SQUARES.

FROM A STAFF CORRESPONDENT OF THE TRIBUNE.

WASHINGTON, April 18.—It probably never entered the heads of the gentlemen who organized the National Academy of Sciences and fixed by a charter from Congress its annual meeting at this city in April, that they were thus selecting a time of year when the capital appears to great advantage. The dust, which makes Washington almost intolerable later in the season, is now laid by frequent showers, and the temperate air is midway between Summer's heat and Winter's chill. To reach the Smithsonian Institution where the sessions of the Academy are held, the visitor must pass through one of the queerest outskirts of the city. The old canal, now filled up, used to border on one side the Smithsonian grounds. It brings a motley traffic along its banks, which has not wholly died out. Long, open sheds yet remain, covering and mounted upon such wooden platforms as might befit a railway station, but only serving to shelter the dealers in hay and the colored drivers of hay wagons at certain hours in the day. Before the hay wagons arrive, and after they leave, the sheds are deserted. On one side there is a vast mound of mingled earth and asphalt, flanked by innumerable broken barrels and a colony of furnaces for heating the mixture. Sometimes one or two of the furnaces may be at work, and occasionally a laborer may be seen driving a pick into the mound with that leisurely style of work that suggests to the observer a Government contract. Doubtless there are "pontice pavements" manufactured here. The ground around was torn up, undergoing improvement in the vicinity last year; at this hour it is still desolate, though with the railings the outlines of road and grassplot are becoming distinct. But before entering the grounds I pause at a transparency which indicates the studies of popular science. The booth to which the canvas serves as a sign, is, of course, kept by a colored man. In large letters appear the words:

"ARACHIS HYPERGAEA
OR VA. PEANUTS."

The park that surrounds the Smithsonian building contains a large number of evergreens; these and the rich grass beneath, give it a deeper tone than the other pleasure-grounds of the city, though the native trees are already bright with leaf and bloom, the double peach flower adding its scarlet blaze at intervals. Outside the brown-stone walls robbins are chirping; within, the scientific folk are assembling, and I doubt whether they have anything more curious to offer than a little negro boy has under a tree, where he is holding a kitten that meows, and for every meow is answered by an imitative note from a cat-bird in the branches above.

Prof. Henry apologized to the gathered savants for a few minutes' delay in his attendance. The atmosphere of investigations had penetrated, it appears, even the cloisters of science, and he had been spending the morning as a witness before a committee of Congress. Let us hope that the rage for retrenchment will not be allowed to interfere with his priceless labors which concern both humanity and science in the light-house Board, nor with the service which he and Prof. Baird and their small corps of assistants render to the whole country by the work of the Smithsonian. Prof. Henry called the meeting to order; it was not large, but it largely represented the science of America. The Secretary's chair was occupied by the genial Prof. J. E. Hilgard, looking little the worse for a serious illness from which he has just recovered. As President-elect of the American Association for the Advancement of Science, he holds this year the highest honor which his brother students of nature can confer. The gray hairs that deserve veneration are somewhat abundant in the Assembly; Prof. W. B. Rogers in this respect might fairly contest the palm, or perhaps the crown, with Prof. Henry; and the brothers Barnard—Prof. F. A. P., and Gen. G. L.—would be close competitors. Prof. Spencer F. Baird looked in for a moment, and then a messenger handed him a telegram, and he had to leave; I suppose there was a fish out of water somewhere that he was obliged to attend to. The army was well represented by Major-Gen. Meigs, Gen. Humphreys, and Gen. Abbot, all of whom are specialists in science. Prof. Haydon looked as though he thought that the survey of the West was not going to stop with the appropriations for it from Congress. The scraps of Prof. Silliman have not yet affected the rotundity of his figure. There is a prospect of information as to the way of the winds, as Profs. Loomis and Ferrel are here; and of astronomical lore from Profs. Newcomb and Asaph Hall. There may be a battle of dry bones, as Prof. Marsh has come and Prof. Cope is expected, and there are possibilities in the presence of Profs. Newcomb and Gill if a question is started about the most horrible of fossil fishes. Not to catalogue the attendance, let us stop in the list of names just here, after noticing that Prof. Mayer has brought some acoustical apparatus, and that Prof. C. F. Chandler enters at the last moment.

"I find it difficult to contrive a suitable title for my paper," said Prof. A. M. Mayes of the Stevens Technical Institute, Hoboken. There is evidence of the embarrassment in the title furnished, as follows: "On the Precise Determination of the Number of Vibrations of Tuning-forks, and on the Effect of Temperature and of Amplitude of Vibration on the Vibratory Periods of Forks." The paper was not so discouraging as its title. It appears that tuning-forks are now largely used for determining short periods of time, by means of apparatus involving their vibrations. Among these uses, one of the most prominent is in ascertaining the rate of flight of projectiles; another is for pathological experiments upon the rate and character of the pulse; still another is connected with telegraphy, both as to the absolute speed of the electric current, and as to determinations of longitude. But the results obtained in these researches are slightly vitiated by errors of which the sources and laws have been as yet very little ascertained. It has been customary to ascribe the greater portion of these errors to differences of temperature. Instruments have been constructed at great expense to indicate the exact measure of time taken by tuning-forks for their vibrations, but little certainty was obtained because of the difficulty of making the recording cylinders revolve, and the rest of the apparatus conform, with the needful accuracy.

Prof. Mayer had contrived an instrument in which variations of the rate of revolution of the recording cylinder do not affect the point at issue. He first fixes a pointed rod at the end of a pendulum (moved by a clock) so that the point, when at the lowest part of each beat, shall touch a globe of mercury. This touch to the globe completes an electric circuit leading to a tuning fork which is standing so close to a revolving cylinder that when the fork is vibrating a point on the fork describes a waved line on the cylinder. If the fork were not vibrating it would mark a straight line on the cylinder when the latter is rotated. At the instant of contact between the pendulum and mercury a spark passes from the point on the fork to the cylinder. Upon the cylinder there is stretched a sheet of smoked paper, on which the waved line of vibration is continually traced. When the spark passes, it goes through the paper. Two or three sparks may come with the contact, but only the first one goes through the paper. Thus, the length of time between the beats of the pendulum is indicated by the distance of the waves in the line of vibration. The following is the result of my observations:

"The time then went to Committee of the Whole on the bill to provide for the deposit and disbursement of funds of the Mayor, Aldermen, and Commonalty of the City of New York."

The following bills were passed:

Relative to the police force of Yonkers.

Relative to emigrants employed upon the canals of the State.

Relative to the Twenty-third and Twenty-fourth Wards in the City of New York.

To appropriate \$50,000 for the improvement of the canals of New York.

Relative to a series of taxes in the City of New York.

Mr. Woodson offered a concurrent resolution extending the term of the Special Committees on Canals to May 1st, 1877.

Mr. Bouman called from the table the concurrent resolution for adopting the canals, since 1875, and for the payment of the expenses of the same, and the resolutions adopted by the New-York Produce Exchange favoring the adoption of the same, and recommending the sale of the lateral canals, as they are simply burdens on the taxpayers.

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